SECTION 02734

SOLIDS HANDLING PUMPING STATION

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Carver Pumping Station Control Panel

1.2 QUALITY ASSURANCE

A. Contractor will furnish the Engineer and Owner a description of all material before ordering. Engineer will review the Contractor's submittals and provide in writing an acceptance or rejection of material.

B. Material and equipment shall be the standard products of a manufacturer who has manufactured them for a minimum of two years and provides published data on their quality and performance.

1.3 PRODUCT DELIVERY, STORAGE & HANDLING

A. Material shall be unloaded in a manner avoiding damage and shall be stored where it will be protected and will not be hazardous to traffic. If stored on private property, Contractor shall obtain permission from property owner and shall repair any damage caused by the storage. Material shall be examined before installation. Neither damaged nor deteriorated material shall be used in the work.

1.4 GUARANTEE

A. Contractor shall guarantee quality of materials, equipment, and workmanship for 12 months after acceptance of the completed Project. Defects discovered during this period shall be repaired by Contractor at no cost to the Owner.

PART 2 – PRODUCTS

Materials and products used shall conform to the following:

2.1 SUBMERSIBLE SOLIDS HANDLING PUMPING STATION

A. The Pump station contains heavy duty, dual submersible pumps installed in a concrete wet well. Existing pumps, high level, and low level float switches shall be connected to the new control panel. Existing pumps are Flygt Model cp3085 2.3, FLA = 10.2.

B. Existing Pump Control Panel to be demolished is Flygt Model f202, Serial No. o52c1325312, 230V, 1-phase. 60Hz.

C. New Pump Control Panel shall be by Flygt and shall provide all functions of the existing Control Panel except the wet well level sensing shall be by a MultiTrode level sensing probe Model No. 2.0 / 10-10.

D. The system enclosure shall be NEMA 4X, minimum 30” high by 30” wide by 10” deep 304 SS with padlockable draw latches. The enclosure shall allow for wall mounting by containing external mounting feet. All materials shall be stainless steel.

E. The system shall utilize multiple multi-sensored probes to determine pump-on, lag pump on, pump-off, and high-level alarm conditions. Probes shall be constructed from PVC 1.25-

inch tubing with molded sensor units at regular intervals along the probe. Each sensor unit will be PVC injected to prohibit ingress of moisture, and the sensor material shall be Avesta SMO 254 stainless steel.

F. Mounting – Probes will be mounted in a turbulent area of wet well, suspended on their own cables and connected to a 0.23-inch stainless steel hook which will be hooked to a 1.18-inch stainless steel angle containing a polyurethane squeegee pad positioned in the opening into wet well, so probes can be removed without entering wet well. The squeegee will have a 1.18-inch hole and slot, enabling probe to be pulled through and cleaned.

G. This installation will be in accordance with the manufacturer's instructions. Probes shall be covered by the manufacturer's ten-year warranty.

H. Circuit Breakers – Provide main breaker for control panel and branch circuit breakers as indicated on the Drawings.

I. Probes and Sensors – Sensors will be spaced along the length of each probe assembly, and each will be individually connected to a correspondingly numbered 0.03-inch flexible cable.

J. The molded sensor unit will contain two Avesta sensors mounted on opposing sides of sensor unit. Each Avesta sensor will be 0.94 inches high and no wider than 0.08-inches and will protrude from surface of the PVC.

K. The probes shall be pressure injected with an epoxy resin to encapsulate all internal components and connections to form a rigid, homogenous unit.

L. Each sensor unit containing the two Avesta sensors will be rotated 90 degrees to previous sensor unit to eliminate tracking between sensors.

M. Cable – The cable will be numbered (number and text) along entirety of cable and at intervals not greater than 7.5 inches for identification. This cable will be dark blue in color, with the cores light blue.

N. Flexible cables shall be capable of supporting the weight of probe and cable, without need for additional support.

O. The cable shall be secured to top of probe by a synthetic rubber compression fitting.

P. MultiSmart Intelligent Pump Station Manager – Relays shall be ice-cube plug in type. Relay contacts shall be rated 10 amp minimum.

Q. Floats – The system shall be a two-float back up with relay logic. High-level float will activate high level alarm and turn the pumps on. The low-level float will turn the pumps off when it is in the hanging position.

R. An alternator shall also be provided to change operation sequence of pumps at the completion of each pumping cycle. Provisions shall also be made for pumps to operate in parallel if level in wet well continues to rise above the "pump-on" cycle. Contractor shall furnish and install one automatic control center, equipped with individual disconnects, across-the-line magnetic starters, 1 phase, overload and phase protection, electrical alternator, automatic transfer to non- operating pump in event of overload in operating

pump, overload reset, hand- off-automatic pump operation selector switch, 24-volt control circuit transformer, and terminal board with connections for high-level alarm. All components shall be housed in a NEMA 4X enclosure.

S. Alarm – A high water alarm shall be supplied. A red flashing light shall be supplied mounted on the control enclosure. An audible alarm consisting of a weatherproof bell with automatic reset silencer switch and signal light shall be installed on the enclosure in addition to the flashing red light alarm.

T. Operation and Maintenance Manual – The pump manufacturer shall furnish Owner with a minimum of three manuals for pumps installed.

2.2 PRODUCT REVIEW

A. Contractor shall provide the Engineer with a complete description of all products before ordering. Engineer will review all products before they are ordered by Contractor.

PART 3 – EXECUTION

3.1 PUMP STATION CONTROL PANEL

Replace existing control panel with new and make all connections per the manufacturer's instructions.

Remove existing operating level sensing from the wet well and install the MultiTrode probe and cable per the manufacturer's instructions.

Demonstrate proper system operation to Owner.

Drawings indicate the general arrangement and location of electrical equipment, conduit, piping, transformer, and generator. Installation and location of these items shall be coordinated with the pump station operating personnel.

END OF SECTION